DOCUMENT RESUME

ED 254 173 HE 018 139

TITLE	Analysis of Error Associated with the Application and Allocation Aspects of the Campus-Based Program: Plan for Remaining QC IV Stage 1 Analysis.
INSTITUTION	Advanced Technology, Inc., Reston, VA.
SPONS AGENCY	Office of Student Financial Assistance (ED), Washington, DC.
PUB DATE	Oct 84
NOTE	11p.; For related documents, see HE 018 112-135 and HE 018 137-140.
PUB TYPE	Reports - Evaluative/Feasibility (142)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Computation; *Data Collection; *Error Patterns; Evaluation Criteria; *Federal Aid; Grants; Higher Education; Needs Assessment; Problem Solving; *Quality Control; Records (Forms); *Resource Allocation; *Student Financial Aid; Student Loan Programs; Work Study Programs
IDENTIFIERS	*Campus Based Financial Aid; College Work Study Program; National Direct Student Loan Program; Supplemental Educational Opportunity Grants

ABSTRACT

The impact of data discrepancies made by colleges on the Fiscal Operations Report and Application to Participate (FISAP) is addressed, with attention to both impact on the entire aid program and resource allocation to institutions. Brief descriptions are provided of the allocation formulas for the three campus-based aid programs (Supplemental Education Opportunity Grants, National Direct Student Loans, and the College Work-Study program). The recomputation of national and state fair share allocations requires two steps: recomputation of institutional need for each program, and estimation of changes to allocations using Department of Education worksheets. The final step is to develop a national estimate of changes in institutional allocations. In developing error profiles, one focus is on institutions, and the results may lead to selection criteria for increased edit checks or data verification. Another focus of the profiles is the data discrepancy itself and the causes of the errors. Included is a list of FISAP data that have been examined as part of the Department of Education Quality Control Project, along with information on the types and frequency of discrepancies that have not yet been corrected. (SW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED254173

ANALYSIS OF ERROR ASSOCIATED WITH THE APPLICATION AND ALLOCATION ASPECTS OF THE CAMPUS-BASED PROGRAM:

PLAN FOR REMAINING QC IV STAGE I ANALYSIS

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

OCTOBER 1984

HE018139

Submitted by:

ADVANCED TECHNOLOGY, INC.
12001 Sunrise Valley Drive.
Reston, Virginia 22091

INTRODUCTION

As part of the Title IV Quality Control Project, Advanced Technology, Inc. conducted two rounds of data collection related to error in the application and allocation processes of the Campus-Based programs. The first data collection occurred at the Department of Education and examined several data sources to identify discrepancies in FISAP reported data. Over 80 such discrepancies in enrollment, tuition and fees, and Pell expenditure data were discovered. The following FISAP data were examined:

- Maintenance of effort
- Undergraduate tuition and fees
- Graduate tuition and fees
- Pell expenditures
- State expenditures
- Institutional expenditures
- Undergraduate dependent applicants
- Graduate dependent applicants
- Undergraduate independent applicants
- Graduate independent applicants
- Undergraduate enrollment
- Graduate enrollment
- Continuing education
- New enrollment

The institutions whose FISAP's contained one or more discrepancies were selected for supplementary data collection during the institutional site visits. Data discrepancies were presented to institutional staff and staff were asked to explain or demonstrate that these discrepancies were corrected. Over half of the discrepancies identified were resolved. Table 1 indicates the types and frequency of remaining discrepancies.

TABLE 1

ERRORS ASSOCIATED WITH THE APPLICATION PORTION OF THE FISAP:

SELECTED STATISTICS

Discrepancy Item	Number of Discrepancies Identified for Review	Responses Received[1]		Comparisons		Discrepancies Resolved		Discrepancies Not Resolved	
		Number	Percent	Cross-Source	Cross-Year	Number	Percentage	Number	Percentage
Enrollment[2]	60	53	88.3%	50	3	28	53%	24[3]	45%
Tuition and Fees	8	8	100	3	5	5	62.5	3	37.5
Pell Expenditures	7	6	75	3	0	3	100	0	0
Eligible Applicant Income	8	6	75	0	6	5	83.4	1	16.6
TOTAL	83	70	84.3	56	14	41	58.6	29	41.4

[1]Of 83 institutions identified for item discrepancy resolution, 61 provided information on 70 discrepancies.
[2]Of total enrollment discrepancies, all but three were generated by comparisons to HEGIS.
[3]The enrollment discrepancy for one institution was both cross-source and cross-year. It was counted as two separate errors, but with one resolution.

BEST COPY AVAILABLE

The remaining discrepancies will be analyzed in order to produce the following four error measures:

- Likelihood of occurrence
- Severity, or size, of error
- Need consequence
- Allocation consequence

These four measures are briefly defined in the following paragraphs.

Likelihood of occurrence is the proportion, or percentage, of institutions for which an unexplained difference exists between the application value and the comparison value. Table 1 provides results of the data collection for this error measure.

Severity or size of difference in error provides an estimate of the seriousness of differences between application values and comparison values. These measures are reported as the average error or average difference between the two values.

Need consequence measures estimated effects of data element errors on the measures of absolute aggregate need calculated for each campus. This type of measure is used for data elements for which the comparison values represent exact values, including HEGIS enrollment and tuition and Pell expenditures. For example, it is possible to estimate the need consequence of differences between reported enrollment and HEGIS enrollment.

Allocation consequence measures estimated effects of need changes on Campus-Based program allocations. Allocation consequences may not follow the same pattern as need consequences because of various hold-harmless considerations.

PROPOSED ANALYSIS

The major objective of the last portion of Stage I FISAP analysis is the estimation of the impact of data discrepancies on allocations to institutions with

BEST COPY AVAILABLE

remaining discrepancies as well as a program-wide estimation of this impact. The general approach to the remaining analysis consists of the following steps:

- Obtain institutional allocation worksheets from ED
- Identify institutions with data discrepancies
- Recompute institutional need for these institutions by substituting discrepant data using the prescribed need formula
- Recompute institutional allocations using recomputed need figures, taking into account hold harmless provisions
- Estimate the order of magnitude and direction of changes in national allocations

FISAP Institutional Allocations

The allocation of Campus-Based funds to postsecondary institutions is a function of three factors: a conditional guarantee and institutional need for funds relative to other institutions within the respective state and all institutions nationally. The conditional guarantee for the majority of institutions (other than institutions for the first or second year) is equal to CW-S and SEOG expenditures for the 1979-80 award year. For NDSL this amount equals 90 percent of the greater of expenditures in the prior award year or current year multiplied by its utilization rate for loan funds. Institutional need for funds for Campus-Based programs is based on an algorithm that subtracts institutional resources from costs. The two formulas for the three Campus-Based programs are:

SEOG institutional need = .75 x ((avg. tuition and fees for undergraduates) + (avg. living cost)) x (the number of eligible aid applicants) - aggregate family contribution - Pell expenditures - state expenditures -.25 x institutional expenditures

CW-S and NDSL institutional need = ((avg. tuition and fees for undergraduates, graduates) + (avg. living cost of undergraduates, graduates) x (number of undergraduate, graduate aid applicants) - (aggregate family contribution)

The components of the formulas are all self-explanatory except for the aggregate family contribution. For each income category of eligible aid applicants, a family contribution amount is assigned by ED. This amount differs by type of enrollment (undergraduate or graduate) and dependency status. To calculate the aggregate family contribution for an institution, the number of eligible aid applicants at each income level is multiplied by the average family contribution and those products are then summed first across income groups and then by type of enrollment and dependency status.

This need computation then drives the calculation of the two other components of the institutional allocation: the institution's "national fair share" and "state fair share" increases. The institution's national fair share increase is computed as the ratio of the institution's SEOG or self help need to the sum of computed need for all institutions nationwide multiplied by the program funds available for the national increase. The state fair share increase is computed similarly by multiplying the ratio of the institution's SEOG or self help need to the sum of computed need for all institutions within the state by the funds available for the state fair share increase.

ANALYTIC PROCEDURES

The primary focus of the proposed analysis is the estimation of changes to the national and state fair share allocations for institutions whose FISAP contained unexplained discrepancies. We propose this focus because many institutions receive a substantial portion of Campus-Based funds for one or more programs based through the the conditional guarantees which are not affected by errors we assessed. Regulations state that institutions will receive such a guarantee "unless it suffers a substantial decline in enrollment."

The recomputation of national and state fair share allocations[1] requires two steps. First, institutional need for each program must be recomputed. This involves substituting the most reliable data for discrepant items in the need algorithm. For instance, the correct enrollment data from HEGIS will be substituted for data reported

[1]The SEOG allocation algorithm does not contain a state increase for Continuing Year (C.Y.) funds.

on the FISAP, in cases where discrepancies remain. This recalculated need will then be used to estimate changes in institutional allocations and will result in estimations of the need consequence of data discrepancies.

Our approach to the estimation of changes to allocations, the second step, requires the use of the worksheets that accompany ED notices to institutions of allocation of program funds. These forms are expected to contain the individual components of the allocations which we will adjust to estimate allocation changes. Thus, the availability of these worksheets is crucial to the analysis and constitutes the simplest means of gathering necessary data.

If worksheets are unavailable for any institutions, particularly those with remaining discrepancies for which we will estimate changes to allocations, they cannot be included in the analysis. Clearly, if the number of institutions for which worksheets are unavailable is high and sufficient data cannot be easily obtained, the current approach and proposed analysis may have to be abandoned.

Using these worksheets, changes to the national fair share increase will be estimated by multiplying the ratio of recalculated need to reported need by the amount of the national fair share increase. This will result in the estimated increase or decrease in the national fair share caused by the use of more reliable data.

A similar procedure will be used for the state fair share increase. The ratio used above will be multiplied by the state fair share increase to obtain the recomputed state fair share increase. This is slightly different for SEOG since there is no C.Y. state fair share increase and therefore the state increase only includes I.Y. funds.

The recomputed national and state fair share increases for each program will be added to the conditional guarantee amount for the respective programs. The result will be an estimation of the recomputed Campus-Based allocations for institutions with remaining discrepancies.

The final step in the proposed analysis will be developing a national estimate of changes in institutional allocations. Because of the nature of the Title IV Quality Control sample, the sum of the student sampling weights at each institution will allow

BEST COPY AVAILABLE

BEST COPY AVAILABLE

us to use the changes in institutional allocation to estimate national changes. Similarly, the sum of these sampling weights at each institution multiplied by the institution's Campus-Based allocation summed across all sampled institutions will equal program totals for allocations.

In order to estimate national changes in allocations, we will subtract the recomputed allocation from the original allocation to obtain the difference. This difference will be multiplied by the sum of the student sampling weights at that institution. The sum of this amount across all institutions with remaining discrepancies will constitute the national estimate of changes in Campus-Based allocation due to these discrepancies.

It should be noted that the individual discrepancies could have little or no effect on allocations under certain circumstances. For instance, it is plausible that the state fair share could be zero, since the amount available within states for distribution as state fair share increases is computed by subtracting the sum of the conditional guarantees from the the state allotment. Thus, if the state increase is zero, small changes in institutional need will have a minimal effect on institutional allocations within that state since only the national increase could be affected by recalculation. Consequently, it is possible that what appear to be fairly large changes in reported application data, such as enrollment, could cause only small changes in allocations.

Error Profiles

An objective of the proposed analysis is the development of a profile for discrepancies. Developing such a profile can take two discrete focuses. The first is to focus on institutions. The analysis related to this focus would use statistical techniques to describe the variation in the occurrence of particular types of error by key institutional characteristics such as size, type and control or adminstration procedures. The results of this analysis would lend itself to selection criteria for increased edit checks or data verification.

Another focus is on the data discrepancy itself and the causes of these errors. This focus would use descriptive techniques to identify the magnitude of and most frequent causes of error through explanations provided by institutional staff and would lend itself to the development of edit checks and corrective actions.

Our ability to conduct an analysis, particularly for the first focus, is constrained by the number of unresolved discrepancies (29). Realistically, only unresolved enrollment discrepancies (24) can be analyzed to any degree. However, even cross-tabulating these discrepancies by type and control, resulting in 12 cells, could produce unreliable results without using additional procedures, since one or more cells could be empty. Even including all types of error in an error/no error variable only marginally improves this analysis. Consequently, we are limited by our data to simple descriptive statistical analysis and all but eliminates the first focus as a meaningful analysis.

The second focus, although still limited by the data, holds more promise, particularly because the data collected about the causes of error is somewhat richer since staff explained the reasons for discrepancies. This data will lend itself to a combination of qualitative and quantitative analyses. Therefore, we propose to analyze the reasons for the occurrence of FISAP discrepancies and to recommend corrective actions to eliminate these discrepancies.

Data Needs

The following data are needed to conduct the proposed analyses:

- Allocation worksheets for all sampled institutions
- EFCs for the need income grid
- Cost of attendance developed by ED

We have already requested that we receive copies of the worksheets. The remaining data will be required before we can proceed with the analysis.